



# Air Force Research Laboratory|AFRL

*Science and Technology for Tomorrow's Air and Space Force*

## **Success Story**

### **SPATIAL AUDIO TECHNOLOGY REDUCES RISK FOR AWACS TRANSITION**



The Human Effectiveness Directorate developed and transitioned its spatial audio knowledge and software, which dramatically improves an operators' ability to discriminate among multiple communication channels. This software directly reduces risk for the Airborne Warning And Control System (AWACS) Block 40/45 fleet upgrade by demonstrating a communications system with many of the same attributes as those desired for the airborne platform. Among those who will use the system at Nellis Air Force Base (AFB), Nevada, are operators from the United States Air Force (USAF) Weapons School and the Combined Air Operations Center supporting the Joint Expeditionary Force Experiment.



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### **Accomplishment**

The directorate collaborated with Compunetix, Inc., the Pittsburgh, Pennsylvania vendor selected to upgrade the communication system at the USAF Weapons School, to transition the spatial audio capability into Compunetix's hardware and software architecture. The 98<sup>th</sup> Operation Support Squadron at Nellis AFB, Nevada, selected Compunetix to provide a system nearly identical to the system previously installed at the Pacific Missile Range Facility, Barking Sands, Kauai, Hawaii.

The USAF Weapons School Command and Control Operations Division at Nellis AFB is the premier site for air battle management tactics instruction. This location will be optimal for showcasing the new capability to the entire command and control (C2) community.

### **Background**

AWACS controllers typically communicate in noisy acoustic environments during mission operations that exceed 20 hrs in duration. Battle managers routinely monitor up to five external and four internal communications ports (radios and intercom channels), discriminating which port was active by a combination of voice recognition and volume setting. The spatial audio technology gives the listener the impression that the voices on the different channels are coming from different directions with respect to his/her location.

With a spatial audio addition, operators experience intelligibility increases of 15-30% when azimuth separates the audio channels as well as the ability to discriminate between multiple simultaneous radio/intercom communications. The directorate initiated the Virtual Air Commanders program to transition technologies that specifically benefit the airborne C2 operator's system interface. Spatial audio is one of the technologies specifically examined and tailored to that interface.

Human Effectiveness  
Support to the Warfighter

### **Additional information**

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (03-HE-03)